PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2001-130324
(43)Date of publication of application : 15.05.2001

(51)Int.Cl. B60R 1/00
B60R 1/07
H04N 7/18

(21)Application number : 11-320115
(22)Date of filing : 10.11.1999

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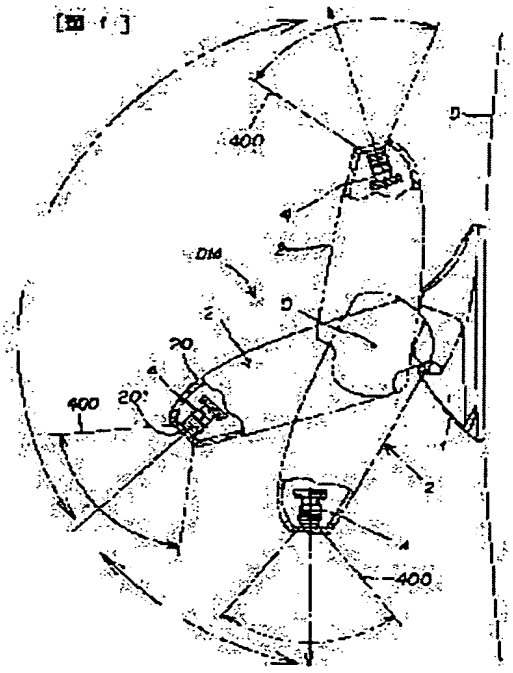
(54) CIRCUMSTANCE CONFIRMING DEVICE FOR AUTOMOBILE

(57)Abstract:
PROBLEM TO BE SOLVED: To catch three-directional information without requiring a dedicated driving portion for moving a camera device.
SOLUTION: A control switch SW and a control circuit portion 3 are structured so that a mirror assembly 2 rotates among three positions and stops at the three positions. As a result, one camera device 4 can catch the three- directional information. By improving an existing control switch and the control circuit portion, the mirror assembly 2 can be rotated between a using position and a forward tilting position, and stopped between the using position and the forward tilting position. Therefore, a motor of an existing door mirror device can be utilized as it is, and the dedicated driving portion for moving the camera device 4 in three directions is not required.



Published Japanese Patent Applications: JP, 2001-130324, A

CLAIMS

[Claim(s)]

[Claim 1] The mirror base fixed to the door of an automobile The mirror assembly attached in the aforementioned mirror base possible [rotation] A motor, the control switch which is made to drive the aforementioned motor and is made to rotate the aforementioned mirror assembly, and the control circuit section which makes a position suspend the aforementioned mirror assembly to rotate It is the circumference check equipment equipped with the above for automobiles, and the aforementioned control switch consists the aforementioned mirror assembly of a control switch which makes rotate between three positions of an operating position, a front devotion position, and a back devotion position, and the aforementioned control circuit section carries out what becomes from the control circuit section which makes three positions of an operating position, a front devotion position, and a back devotion position suspend the aforementioned mirror assembly as the feature.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention catches the information around an automobile with image pck-up equipment (for example, camera equipment is called camera equipments, such as CCD camera equipment, and the following), and projects it on a monitoring device as a camera image. It is circumference check equipment for automobiles which checks the surroundings of an automobile, namely, carries out the check-by-looking check of the dead angle around an automobile, and

the circumference check equipment for automobiles built in in the mirror assembly of the door mirror equipment with which the aforementioned camera equipment is carried in the door of an automobile is started. Especially this invention can catch the information on three directions with one camera equipment, and, moreover, relates to the circumference check equipment for automobiles with the unnecessary mechanical component of the exclusive use for moving camera equipment in the three directions.

[0002]

[Description of the Prior Art] Generally shell composition of this kind of circumference check equipment for automobiles is carried out with the door mirror equipment carried in the door of an automobile, the camera equipment which is built in in the mirror assembly, catches the information around an automobile, and is changed into a video signal, and the monitoring device which projects the information around the automobile caught by the camera equipment as a camera image. As this circumference check equipment for automobiles, there is equipment (equipment given in JP,6-953,U) for which these people applied previously, for example.

[0003]

[Problem(s) to be Solved by the Invention] However, the aforementioned circumference check equipment for automobiles can catch only the information on one direction with one camera equipment. Then, in order to catch the information on the many directions with one camera equipment, technical problems, like the mechanical component of the exclusive use for moving camera equipment in the many directions is needed occur.

[0004] this invention can catch the information on three directions with one camera equipment, and, moreover, the mechanical component of the exclusive use for moving camera equipment in the three directions is to offer the unnecessary circumference check equipment for automobiles.

[0005]

[Means for Solving the Problem] the control switch made to rotate between three positions of an operating position, a front devotion position, and a back devotion position for a mirror assembly in order that this invention may attain the above-mentioned purpose, and the control circuit section which makes three positions of an operating position, a front devotion position, and a back devotion position suspend a mirror assembly -- a shell -- it is characterized by things

[0006] Consequently, by operation of a control switch and the operation of the control circuit section, a mirror assembly rotates between three positions, and the circumference check equipment for automobiles of this invention stops in three

positions. Thereby, the information on three directions can be caught with one camera equipment. And since the existing control switch and the existing control circuit section of door mirror equipment can only be improved, and between an operating position and front devotion positions can be rotated for a mirror assembly and the front devotion position and operating position can be stopped, the mechanical component of the exclusive use for being able to use the motor of existing door mirror equipment as it is, and moving camera equipment in the three directions is unnecessary.

[0007]

[Embodiments of the Invention] Hereafter, 1 operation form of the circumference check equipment for automobiles of this invention is explained with reference to an accompanying drawing. This operation form explains the example in which door mirror equipment was carried in the door on the left-hand side of an automobile. In addition, when door mirror equipment is carried in the door on the right-hand side of an automobile, it becomes right-and-left reverse. And in this specification, the front means the front it turned [front] to the travelling direction of an automobile from the driver, back means the back it turned [back] to the travelling direction of an automobile from the driver, left-hand side means the left-hand side it turned [left-hand side] to the travelling direction of an automobile from the driver, and right-hand side means the right-hand side it turned [right-hand side] to the travelling direction of an automobile from the driver.

[0008] DM is door mirror equipment among drawing 1 and drawing 2 . This door mirror equipment DM possesses the mirror base 1 fixed to the door D of an automobile, the mirror assembly 2 attached in the mirror base 1 possible [rotation], the control switch SW which is made to drive Motor M and its motor M, and is made to rotate the mirror assembly 2, and the control circuit section 3 which makes a position suspend the mirror assembly 2 to rotate.

[0009] In addition, the aforementioned mirror assembly 2 consists of the mirror bodies 200 which were attached in the mirror housing 20 and its mirror housing 20 possible [tilting] vertically and horizontally through the power unit (not shown), and have been arranged at opening of the mirror housing 20.

[0010] In the aforementioned mirror assembly 2, the camera equipment 4 which consists of a CCD camera is built in. This camera equipment 4 is installed in the edge distant from the rotation center O of the mirror assembly 2. The transparent board 201 is formed in the edge of this mirror assembly 2. Consequently, the field angle which can check by looking the range 400 which shows the aforementioned camera

equipment 4 to drawing 1 and drawing 2 is obtained. In addition, a wide angle lens may be used.

[0011] the instrument panel (not shown) near an automobilism seat on the other hand etc. -- the monitoring device 5 is mostly installed in the center This monitoring device 5 projects on a screen the information around the automobile caught by the aforementioned camera equipment 4 as a camera image, as shown in drawing 4 .

[0012] The aforementioned control switch SW is 3 position circuit changing switch, and as shown in drawing 5 or drawing 11 , it consists of one traveling contact 41 connected to Dc-battery (power supply) B, and three stationary contacts 42, i.e., the 1st stationary contact, the 2nd stationary contact 43 and the 3rd stationary contact 44. This control switch SW rotates between three positions of an operating position (position shown as the solid line in drawing 1), a front devotion position (position shown with the two-dot chain line in drawing 1), and a back devotion position (position shown with the alternate long and short dash line in drawing 1) for the aforementioned mirror assembly 2.

[0013] In drawing 3 , SW1 is the 4 direction circuit changing switch, and is a remote control switch to which the aforementioned mirror body 200 is made to tilt vertically and horizontally to the mirror housing 20. Moreover, SW2 is a 2-way circuit changing switch, and is a switch which chooses four-directions tilting of the right-hand side mirror body 200 and four-directions tilting of the left-hand side mirror body 200. These switches SW1 and SW2 and the aforementioned control switch SW are contained by one switching and balancing box.

[0014] Moreover, the aforementioned control circuit section 3 consists of 2 sets of relay circuits RC1 and RS1, and RC2 and RS2 as [show / in drawing 5 or drawing 11]. / two current carrying parts 300 and 301 and two current carrying parts 300, five brushes 31, 32, 33, 34 and 35 which carry out the slide electric conduction of the 301 tops, and This control circuit section 3 makes three positions of an operating position, a front devotion position, and a back devotion position suspend the aforementioned mirror assembly 2.

[0015] The two aforementioned current carrying parts 301 [300 and] 300, i.e., the 1st current carrying part, and the 2nd current carrying part 301 are formed on the rotor plate (not shown) which carries out interlocking rotation with rotation of the aforementioned mirror assembly 2. These two current carrying parts 300 and 301 consist for example, of electric conduction sheet metal, and make the circular configuration in the state where it was isolated mutually. Between these two current carrying parts 300 and 301, the dead air space 302 corresponding to an operating

position, the dead air space 303 corresponding to a front devotion position, and the dead air space 304 corresponding to a back devotion position are formed, respectively. The distance from center-of-rotation O' of two current carrying parts 300 and 301 differs, respectively, and the interval which is about 90 degrees is opening this operating position dead air space 302, the front devotion position dead air space 303, and the back devotion position dead air space 304. In addition, the rotation center O of center-of-rotation O' of the aforementioned current carrying parts 300 and 301 and the aforementioned mirror assembly 2 may be on this heart, and may not be on this heart.

[0016] the 2 aforementioned sets of relay circuits -- the [the 1st relay coil RC1, 1st relay contact RS1, and] -- it consists of a 2 relay coil RC2 and 2nd relay contact RS2 the [this 1st relay contact RS1 and] -- 2 relay contact RS2 consists of the 2nd stationary contact, one traveling contacts 11 and 21, and the two stationary contacts 12 and 22, i.e., 1st stationary contact, 13 and 23 The traveling contact 11 of the 1st relay of the above is connected to the end of the aforementioned motor M, and the traveling contact 21 of the 2nd relay of the above is connected to the other end of the aforementioned motor M. These traveling contacts 11 and 21 are connected to 2nd stationary-contact 13 and 23 side when it connects with 1st stationary-contact 12 and 22 side when the relay coils RC1 and RC2 are in a non-operating state (a demagnetization state, i.e., a normal state), and the relay coils RC1 and RC2 are in an operating state (excitation state). This 1st stationary contact 12 and 22 is connected to the gland, respectively (ground), and, on the other hand, the 2nd stationary contact 13 and 23 is connected to Dc-battery B, respectively.

[0017] Among the five aforementioned brushes, the 1st brush 31 always contacts the 1st current carrying part 300, and is connected to the gland through the 1st relay coil RC1. The 2nd brush 32 contacts the 1st current carrying part 300, and corresponds to the front devotion position dead air space 303, and is connected to the 1st stationary contact 42 of the control switch SW. The 3rd brush 33 contacts the 1st current carrying part 300 or the 2nd current carrying part 301, and corresponds to the use devotion position dead air space 302, and is connected to the 2nd stationary contact 43 of the control switch SW. The 4th brush 34 contacts the 2nd current carrying part 301, and corresponds to the back devotion position dead air space 303, and is connected to the 3rd stationary contact 44 of the control switch SW. The 5th brush 35 always contacts the 2nd current carrying part 301, and is connected to the gland with the 1st brush 31 through the 2nd relay coil RC2.

[0018] The circumference check equipment for automobiles of this invention in this

operation gestalt consists of composition like a not less, and explains the operation operation hereafter. First, when the mirror assembly 2 is located in an operating position, the control circuit section 3 is in the state which shows in drawing 5 . At this time, camera equipment 4 projects on the screen of a monitoring device 5 the information which caught the information behind [slanting] the right-and-left both sides (this example left-hand side) of an automobile, and was caught by this camera equipment 4 as a camera image, as shown in drawing 4 (B). Since the slanting back of the right-and-left both sides of an automobile can be checked especially by looking in the case of this operation gestalt, the check-by-looking range of the mirror body 200 is compensated, and it can check by looking more widely than the check-by-looking range of the mirror body 200, consequently is the the best for the unification in a highway etc. Moreover, the detection check of a parallel running vehicle can be performed at the time of a run.

[0019] Next, as the two-dot chain line in drawing 3 shows, the knob 40 of the control switch SW is changed from a center valve position to a front position. Then, as shown in drawing 6 , the traveling contact 41 of the control switch SW changes and connects with the 1st stationary contact 42 from the 2nd stationary contact 43. consequently, the current from Dc-battery B is shown in the arrow in drawing 6 -- as -- traveling contact 41 -> 1st stationary-contact 42 -> 2nd brush 32-> of the control switch SW -- it flows with a 1st current-carrying-part 300 -> 1st brush 31 -> 1st relay coil RC1 -> gland For this reason, the 1st relay coil RC1 will be excited, it will be in an operating state, and the traveling contact 11 of 1st relay contact RS1 changes and connects with the 2nd stationary contact 13 from the 1st stationary contact 12 in connection with this. Thereby, as the current from Dc-battery B is shown in the arrow in drawing 6 , it flows to the traveling contact 21 -> 1st stationary-contact 22 -> gland of the 2nd stationary-contact 13 -> traveling contact 11 -> motor M-> 2nd relay contact SW2 of the 1st relay contact SW1, and Motor M rotates normally, for example. By normal rotation of this motor M, the mirror assembly 2 is rotated in the front of a two-dot chain line arrow, i.e., the direction in drawing 1 . Current carrying parts 300 and 301 rotate in the direction of a solid line arrow in drawing 6 with rotation of this mirror assembly 2.

[0020] If the aforementioned mirror assembly 2 is located in a front devotion position, as shown in drawing 7 , the 2nd brush 32 is located in the front devotion position dead air space 303 of current carrying parts 300 and 301. Traveling contact 41 -> 1st stationary-contact of aforementioned control switch SW 42 -> consequently, the 2nd brush 32 -> the circuit of a 1st current-carrying-part 300 -> 1st brush 31 -> 1st relay

coil RC1 -> gland becomes open, and the 1st relay coil RC1 will be demagnetized and it will be in a non-operating state. Thereby, the traveling contact 11 of 1st relay contact RS1 changes and connects with the 1st stationary contact 12 from the 2nd stationary contact 13. For this reason, the circuit of the traveling contact 21 -> 1st stationary-contact 22 -> gland of the 2nd stationary-contact 13 -> traveling contact 11 -> motor M-> 2nd relay contact SW2 of the 1st relay contact SW1 of the above becomes open, normal rotation of Motor M stops, and the mirror assembly 2 is located in the front devotion position shown with the two-dot chain line in drawing 1 in connection with this. At this time, camera equipment 4 projects on the screen of a monitoring device 5 the information which caught the information ahead of the right-and-left both sides (this example left-hand side) of an automobile, and was caught by this camera equipment 4 as a camera image, as shown in drawing 4 (A). In this case, the detection check of the obstruction of the front fender circumference can do ****** etc. at the time.

[0021] Moreover, the knob 40 of the control switch SW is made to slide to a center valve position from a front position, as the solid line in drawing 3 shows. Then, as shown in drawing 8 , the traveling contact 41 of the control switch SW changes and connects with the 2nd stationary contact 43 from the 1st stationary contact 42. consequently, the current from Dc-battery B is shown in the arrow in drawing 8 -- as -- traveling contact 41 -> 2nd stationary-contact 43 -> 3rd brush 33-> of the control switch SW -- it flows with a 2nd current-carrying-part 301 -> 5th brush 35 -> 2nd relay coil RC2 -> gland For this reason, the 2nd relay coil RC2 will be excited, it will be in an operating state, and the traveling contact 21 of 2nd relay contact RS2 changes and connects with the 2nd stationary contact 23 from the 1st stationary contact 22 in connection with this. Thereby, as the current from Dc-battery B is shown in the arrow in drawing 8 , it flows to the traveling contact 11 -> 1st stationary-contact 12 -> gland of the 2nd stationary-contact 23 -> traveling contact 21 -> motor M-> 1st relay contact SW1 of the 2nd relay contact SW2, and Motor M is reversed, for example. By the inversion of this motor M, the mirror assembly 2 is rotated in the back of a solid line arrow, i.e., the direction in drawing 1 . Current carrying parts 300 and 301 rotate in the direction of a solid line arrow in drawing 8 with rotation of this mirror assembly 2.

[0022] If the aforementioned mirror assembly 2 is located in an operating position, as shown in drawing 5 , the 3rd brush 33 is located in the operating position dead air space 302 of current carrying parts 300 and 301. Traveling contact 41 -> 2nd stationary-contact of aforementioned control switch SW 43 -> consequently, the 3rd brush 33 -> the circuit of a 2nd current-carrying-part 301 -> 5th brush 35 -> 2nd

relay coil RC2 -> gland becomes open, and the 2nd relay coil RC2 will be demagnetized and it will be in a non-operating state. Thereby, the traveling contact 21 of 2nd relay contact RS2 changes and connects with the 1st stationary contact 22 from the 2nd stationary contact 23. For this reason, the circuit of the traveling contact 11 -> 1st stationary-contact 12 -> gland of the 2nd stationary-contact 23 -> traveling contact 21 -> motor M-> 1st relay contact SW1 of the 2nd relay contact SW2 of the above becomes open, the inversion of Motor M stops, and the mirror assembly 2 is located in the operating position shown as the solid line in drawing 1 in connection with this.

[0023] On the other hand, the knob 40 of the control switch SW is made to slide to a back position from a center valve position, as the alternate long and short dash line in drawing 3 shows. Then, as shown in drawing 9 , the traveling contact 41 of the control switch SW changes and connects with the 3rd stationary contact 44 from the 2nd stationary contact 43. consequently, the current from Dc-battery B is shown in the arrow in drawing 9 -- as -- traveling contact 41 -> 3rd stationary-contact 44 -> 4th brush 34-> of the control switch SW -- it flows with a 2nd current-carrying-part 301 -> 5th brush 35 -> 2nd relay coil RC2 -> gland For this reason, the 2nd relay coil RC2 will be excited, it will be in an operating state, and the traveling contact 21 of 2nd relay contact RS2 changes and connects with the 2nd stationary contact 23 from the 1st stationary contact 22 in connection with this. Thereby, as the current from Dc-battery B is shown in the arrow in drawing 9 , it flows to the traveling contact 11 -> 1st stationary-contact 12 -> gland of the 2nd stationary-contact 23 -> traveling contact 21 -> motor M-> 1st relay contact SW1 of the 2nd relay contact SW2, and Motor M is reversed, for example. By the inversion of this motor M, the mirror assembly 2 is rotated in the back of an alternate long and short dash line arrow, i.e., the direction in drawing 1 . Current carrying parts 300 and 301 rotate in the direction of a solid line arrow in drawing 9 with rotation of this mirror assembly 2.

[0024] If the aforementioned mirror assembly 2 is located in a back devotion position, as shown in drawing 10 , the 4th brush 34 is located in the back devotion position dead air space 304 of current carrying parts 300 and 301. Traveling contact 41 -> 3rd stationary-contact of aforementioned control switch SW 44 -> consequently, the 4th brush 34 -> the circuit of a 2nd current-carrying-part 301 -> 5th brush 35 -> 2nd relay coil RC2 -> gland becomes open, and the 2nd relay coil RC2 will be demagnetized and it will be in a non-operating state. Thereby, the traveling contact 21 of 2nd relay contact RS2 changes and connects with the 1st stationary contact 22 from the 2nd stationary contact 23. For this reason, the circuit of the traveling

contact 11 -> 1st stationary-contact 12 -> gland of the 2nd stationary-contact 23 -> traveling contact 21 -> motor M-> 1st relay contact SW1 of the 2nd relay contact SW2 of the above becomes open, the inversion of Motor M stops, and the mirror assembly 2 is located in the back devotion position shown with the alternate long and short dash line in drawing 1 in connection with this. At this time, camera equipment 4 projects on the screen of a monitoring device 5 the information which caught the information behind the right-and-left both sides (this example left-hand side) of an automobile, and was caught by this camera equipment 4 as a camera image, as shown in drawing 4 (C). In this case, the bicycle by which the man in behind rode can be checked, and the detection check of a back obstruction can do ****** etc. at the time.

[0025] Moreover, the knob 40 of the control switch SW is made to slide to a center valve position from a back position, as the solid line in drawing 3 shows. Then, as shown in drawing 11 , the traveling contact 41 of the control switch SW changes and connects with the 2nd stationary contact 43 from the 3rd stationary contact 44. consequently, the current from Dc-battery B is shown in the arrow in drawing 11 -- as -- traveling contact 41 -> 2nd stationary-contact 43 -> 3rd brush 33-> of the control switch SW -- it flows with a 1st current-carrying-part 300 -> 1st brush 31 -> 1st relay coil RC1 -> gland For this reason, the 1st relay coil RC1 will be excited, it will be in an operating state, and the traveling contact 11 of 1st relay contact RS1 changes and connects with the 2nd stationary contact 13 from the 1st stationary contact 12 in connection with this. Thereby, as the current from Dc-battery B is shown in the arrow in drawing 11 , it flows to the traveling contact 21 -> 1st stationary-contact 22 -> gland of the 2nd stationary-contact 13 -> traveling contact 11 -> motor M-> 2nd relay contact SW2 of the 1st relay contact SW1, and Motor M rotates normally, for example. By normal rotation of this motor M, the mirror assembly 2 is rotated in the front of a solid line arrow, i.e., the direction in drawing 1 . Current carrying parts 300 and 301 rotate in the direction of a solid line arrow in drawing 11 with rotation of this mirror assembly 2.

[0026] If the aforementioned mirror assembly 2 is located in an operating position, as shown in drawing 5 , the 3rd brush 33 is located in the operating position dead air space 302 of current carrying parts 300 and 301. Traveling contact 41 -> 2nd stationary-contact of aforementioned control switch SW 43 -> consequently, the 3rd brush 33 -> the circuit of a 1st current-carrying-part 300 -> 1st brush 31 -> 1st relay coil RC1 -> gland becomes open, and the 1st relay coil RC1 will be demagnetized and it will be in a non-operating state. Thereby, the traveling contact 11 of 1st relay

contact RS1 changes and connects with the 1st stationary contact 12 from the 2nd stationary contact 13. For this reason, the circuit of the traveling contact 21 -> 1st stationary-contact 22 -> gland of the 2nd stationary-contact 13 -> traveling contact 11 -> motor M-> 2nd relay contact SW2 of the 1st relay contact SW1 of the above becomes open, normal rotation of Motor M stops, and the mirror assembly 2 is located in the operating position shown as the solid line in drawing 1 in connection with this.

[0027] Thus, since the mirror assembly 2 stops in 3 of an operating position, a front devotion position, and a back devotion position positions, the circumference check equipment for automobiles of this invention in this operation form can catch the information on three directions (refer to drawing 4 (A), (B), and (C)) with one camera equipment 4. And in existing door mirror equipment (electric storing formula door mirror equipment), it is constituted so that a mirror assembly may rotate between an operating position and back devotion positions (storing position) and may stop in the two positions. Consequently, since the existing control switch and the existing control circuit section of door mirror equipment can only be improved, and between an operating position and front devotion positions can be rotated for the aforementioned mirror assembly 2 and the front devotion position and operating position can be stopped, the mechanical component of the exclusive use for being able to use the motor of existing door mirror equipment as it is, and moving camera equipment 4 in the three directions is unnecessary.

[0028] when automobiles pass especially, even if the case where devotion storing must be carried out produces the mirror assembly 2 in a front devotion position or a back devotion position -- the above -- like, when the mirror assembly 2 is in a devotion receipt state in a front devotion position or a back devotion position, the front of an automobile can also check back by looking

[0029] Moreover, since a part of body has projected on the monitoring device 5 as shown in drawing 4 , the relative-position relation between the body and an object can be checked.

[0030]

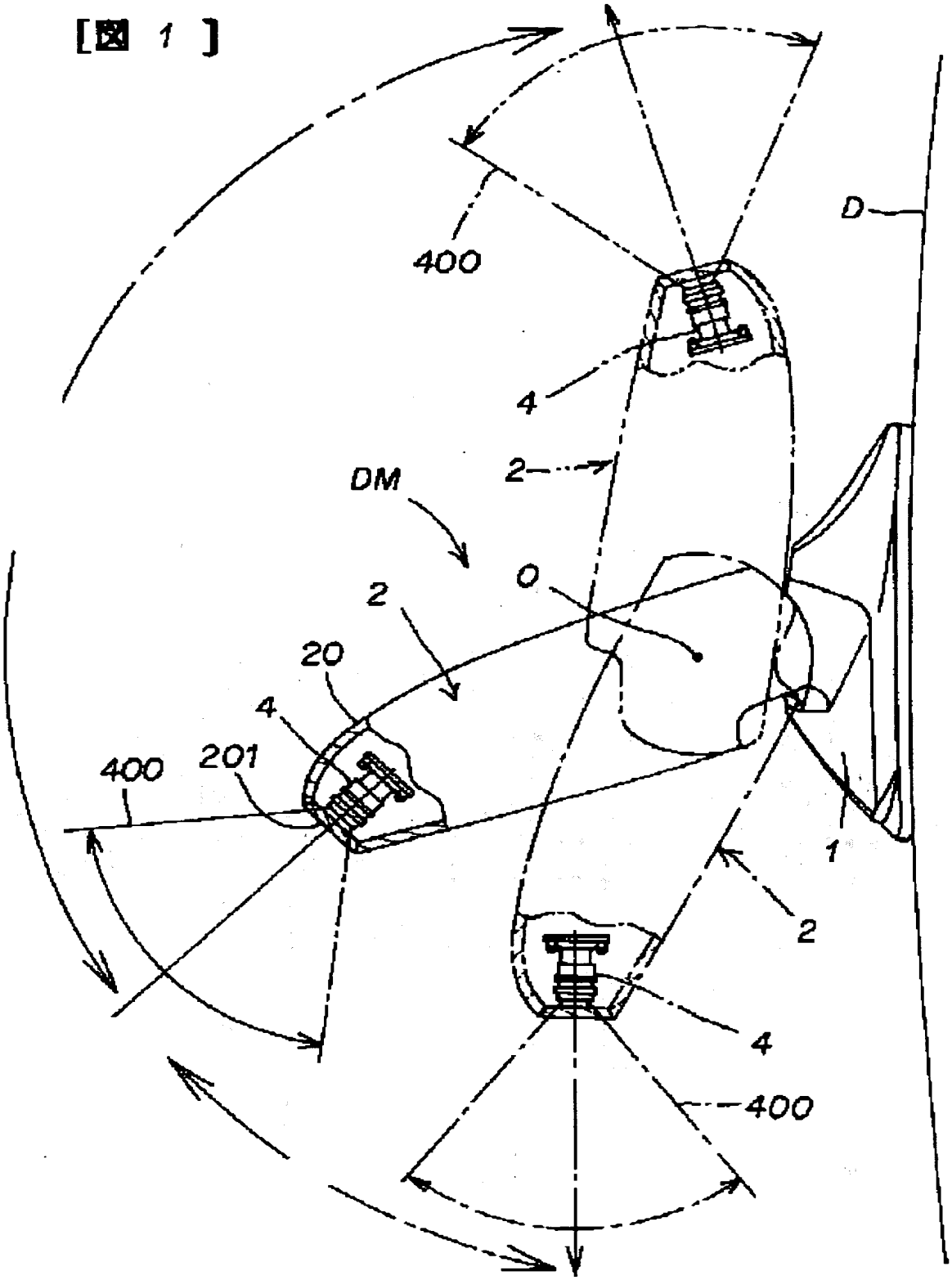
[Effect of the Invention] As mentioned above, since a mirror assembly rotates between three positions and stops in three positions, the circumference check equipment for automobiles of this invention can catch the information on three directions with one camera equipment, so that clearly. And since the existing control switch and the existing control circuit section of door mirror equipment can only be improved, and between an operating position and front devotion positions can be rotated for a mirror assembly and the front devotion position and operating position

can be stopped, the mechanical component of the exclusive use for being able to use the motor of existing door mirror equipment as it is, and moving camera equipment in the three directions is unnecessary.

DRAWINGS

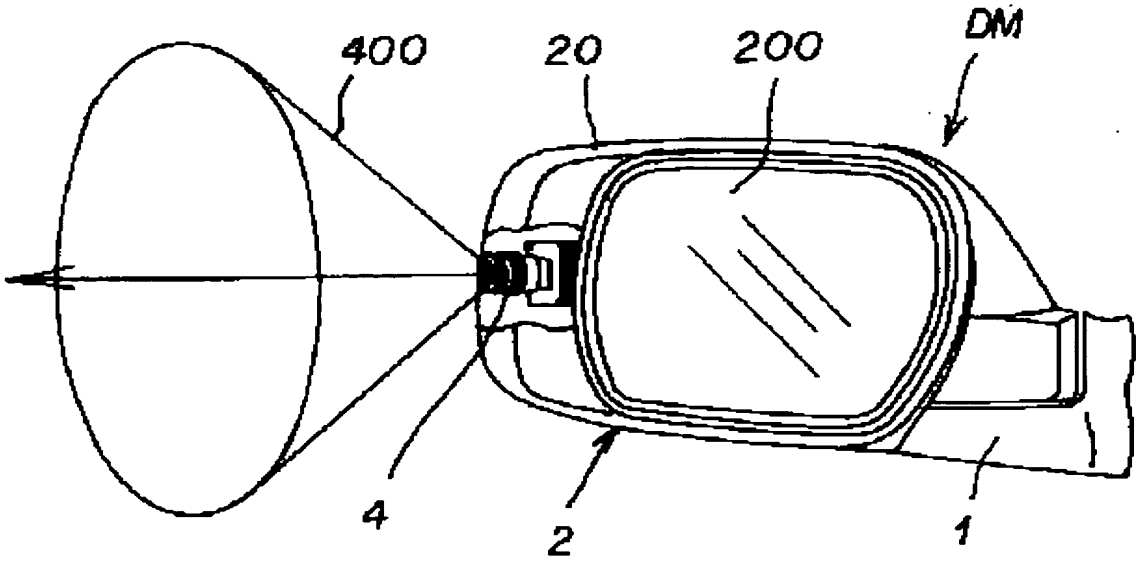
[Drawing 1]

[図 1]



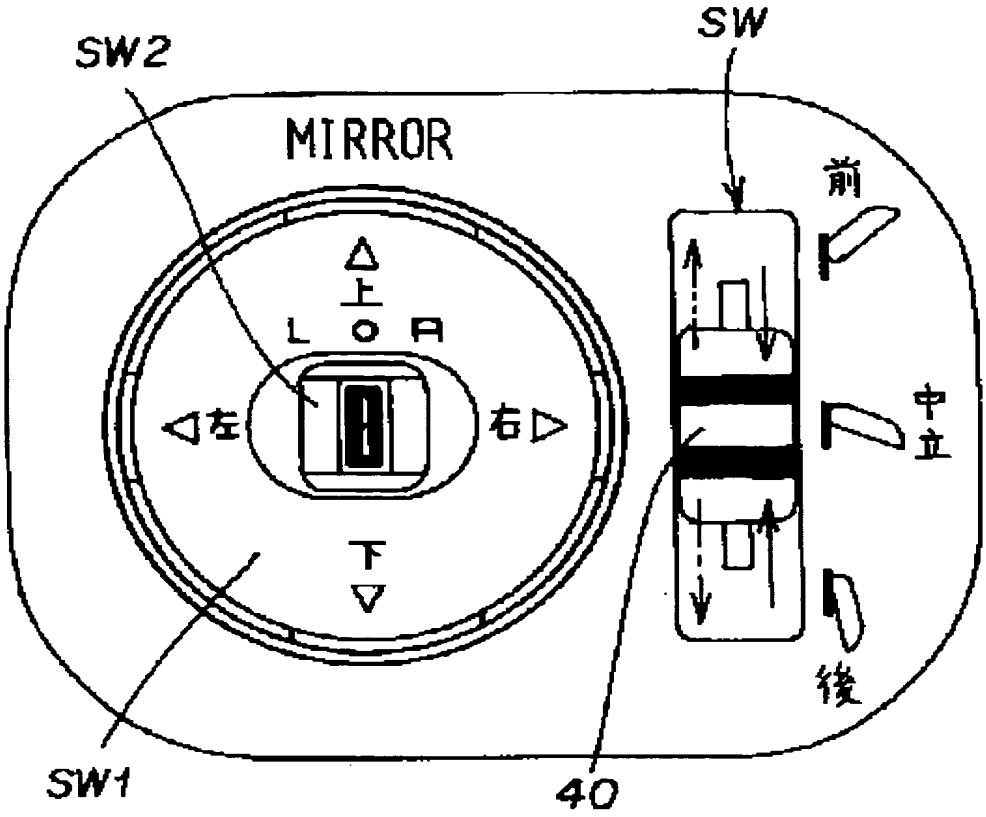
[Drawing 2]

[図 2]



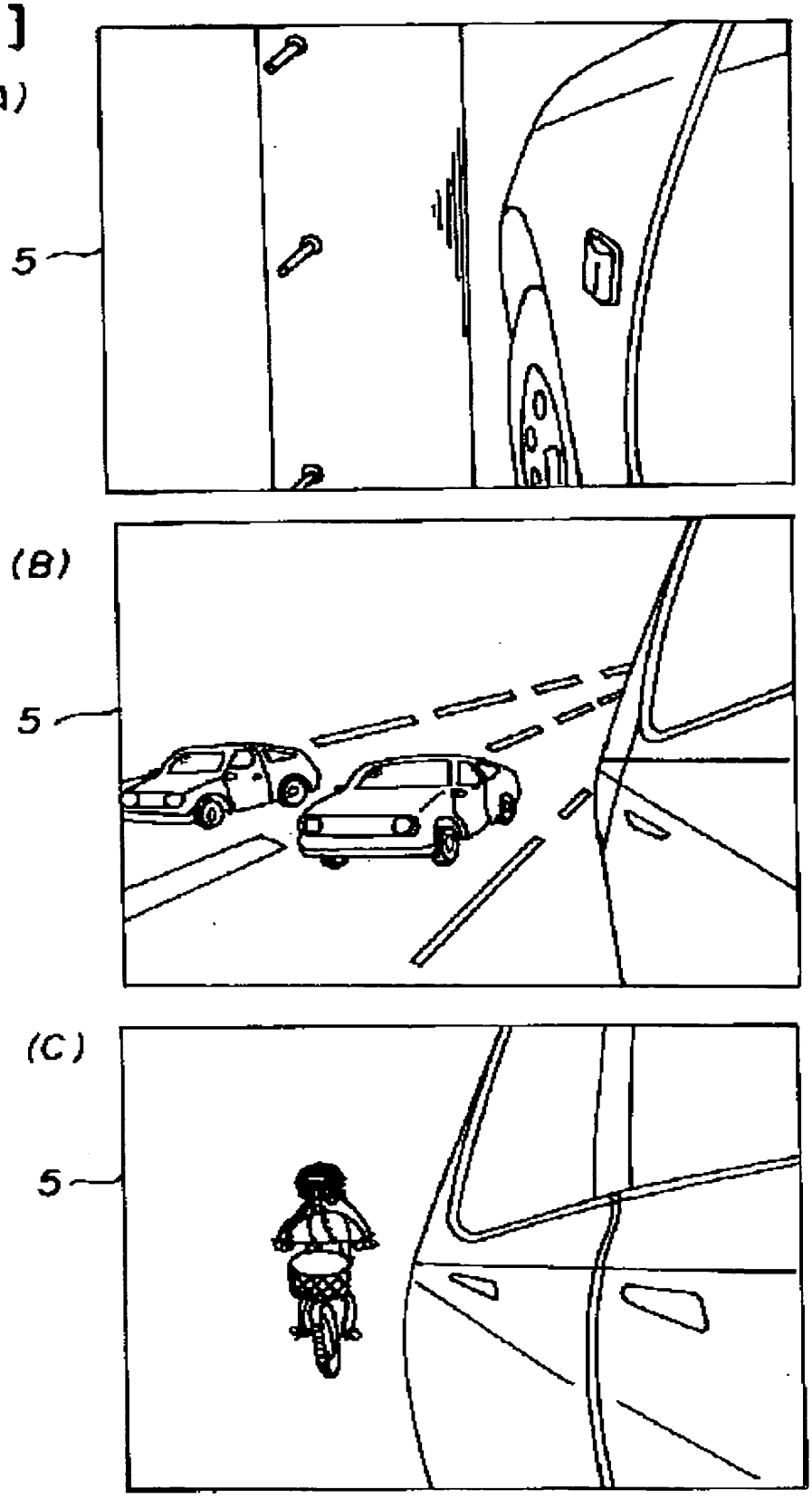
[Drawing 3]

[図 3]



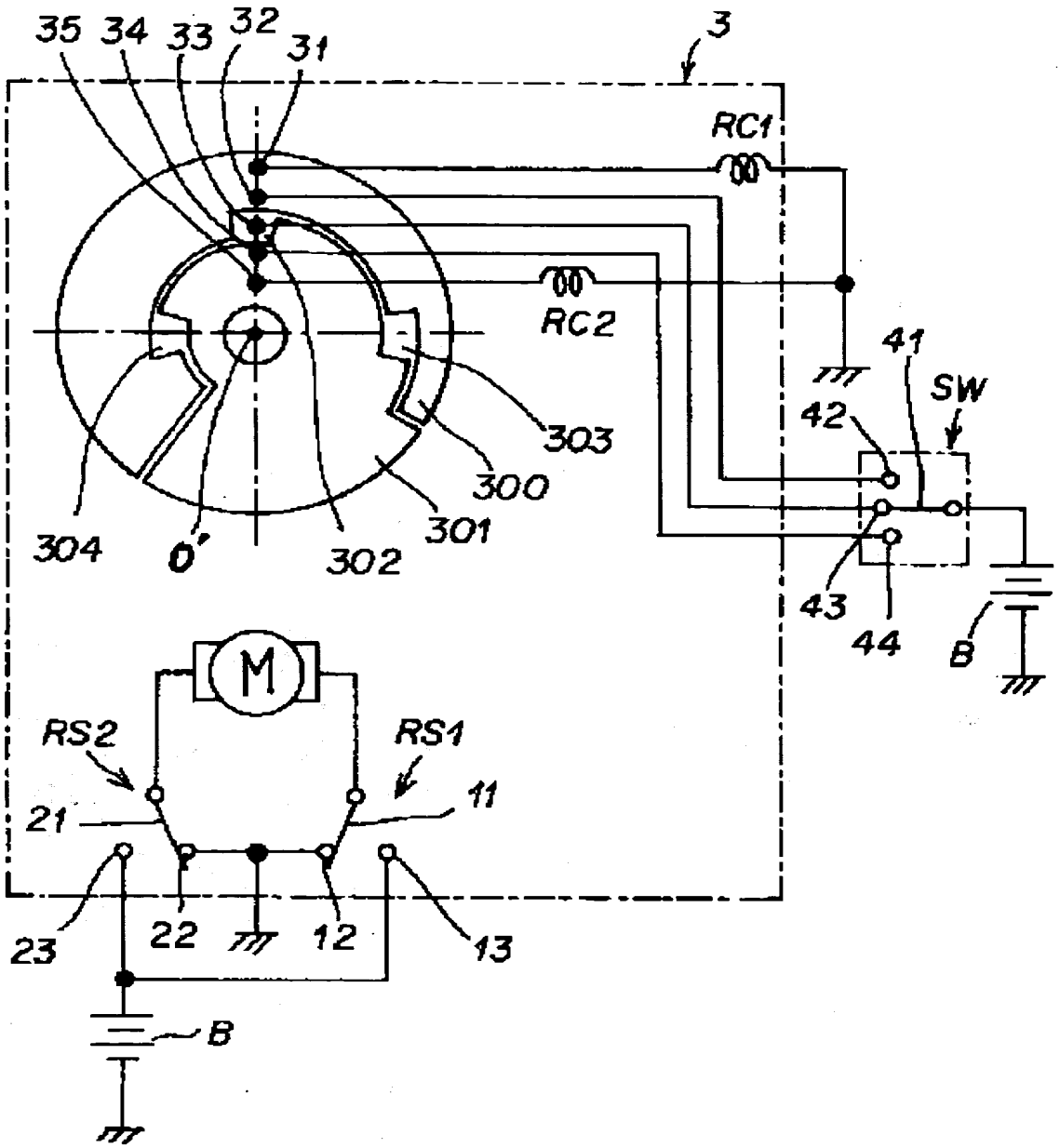
[Drawing 4]

[図 4]



[Drawing 5]

[図 5]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34
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31
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RC1
RC2
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SW
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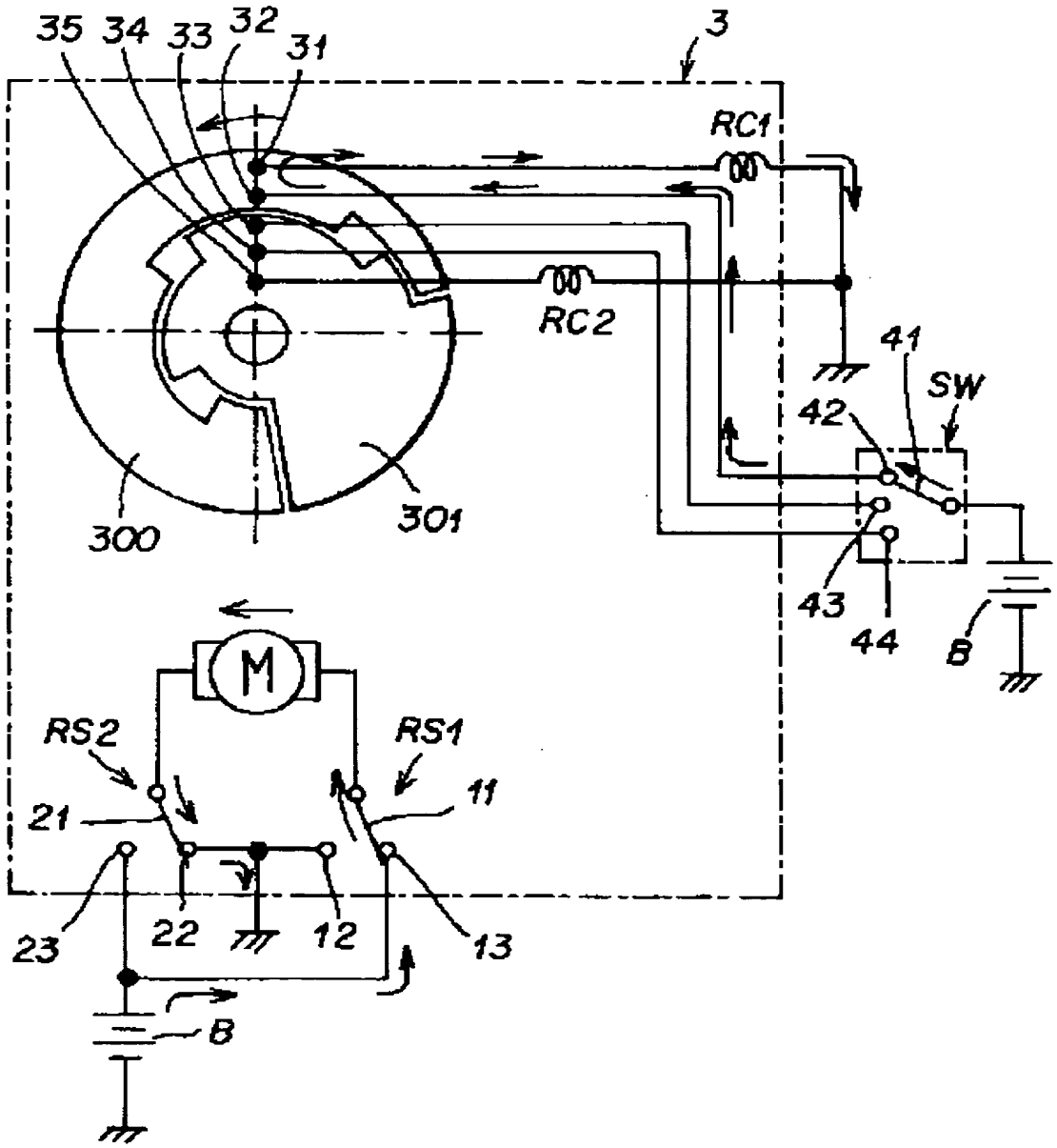
B

[Drawing 6]

[図 6]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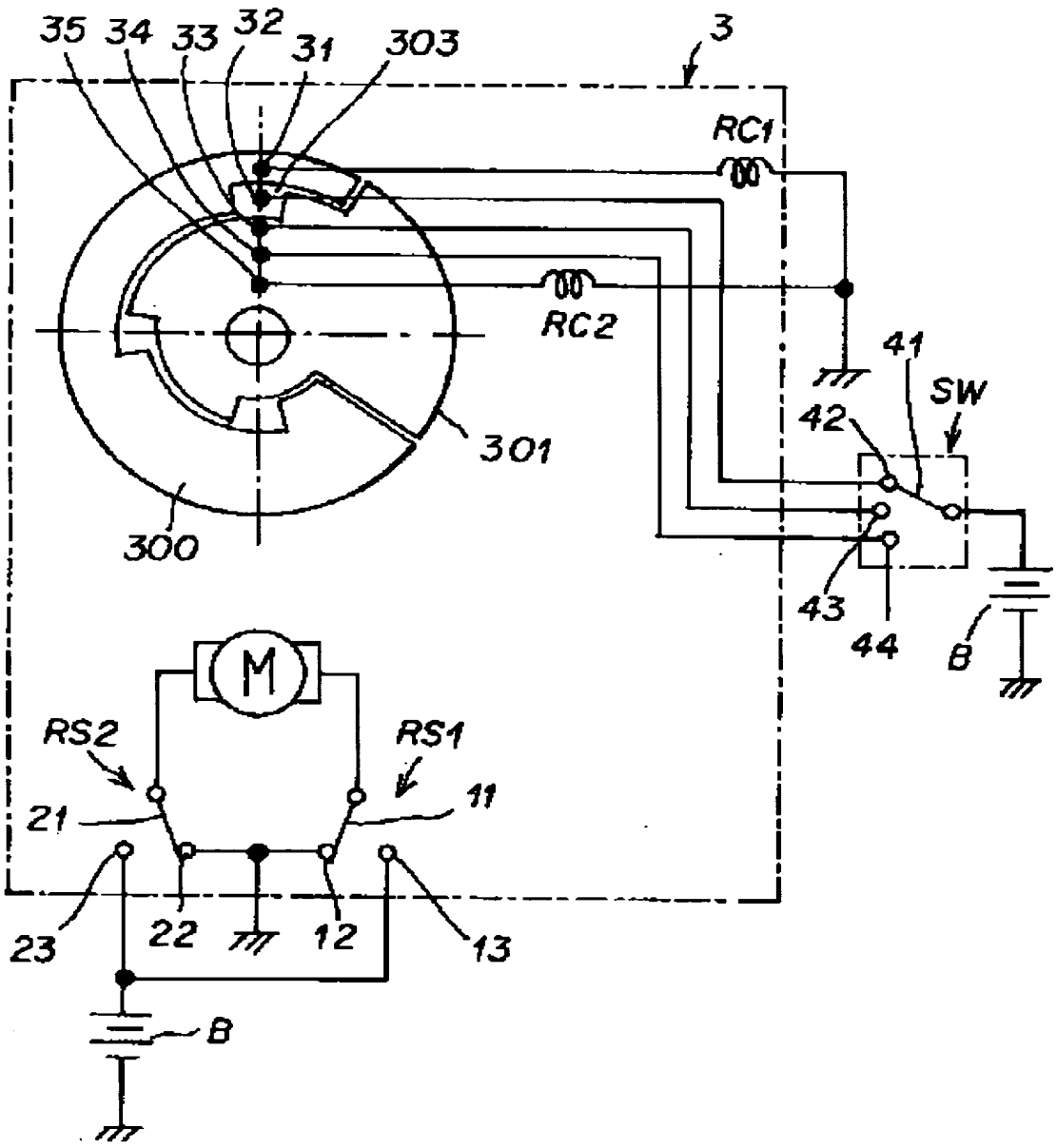
[Drawing 7]

【図 7 】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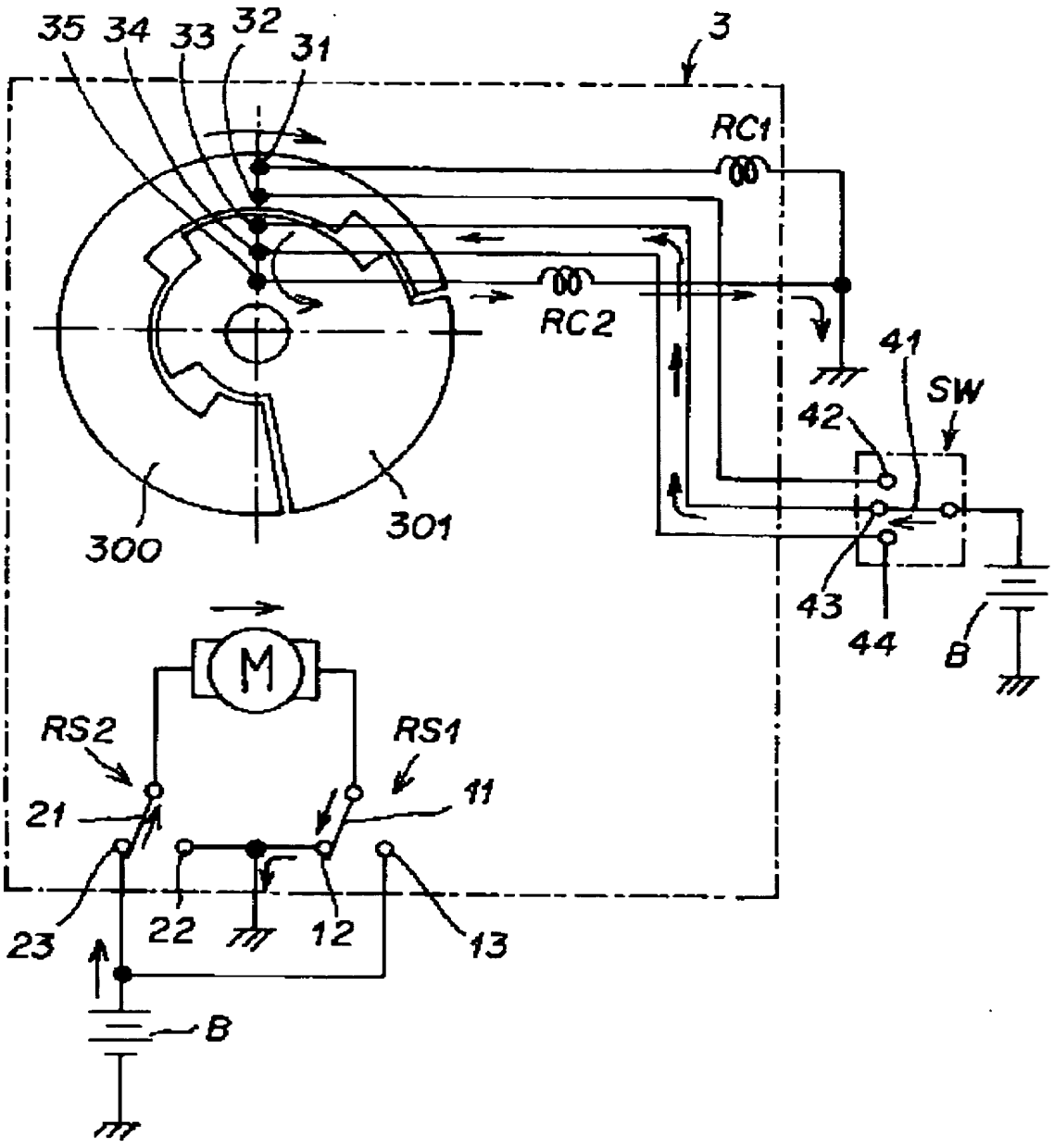
[Drawing 8]

[図 8]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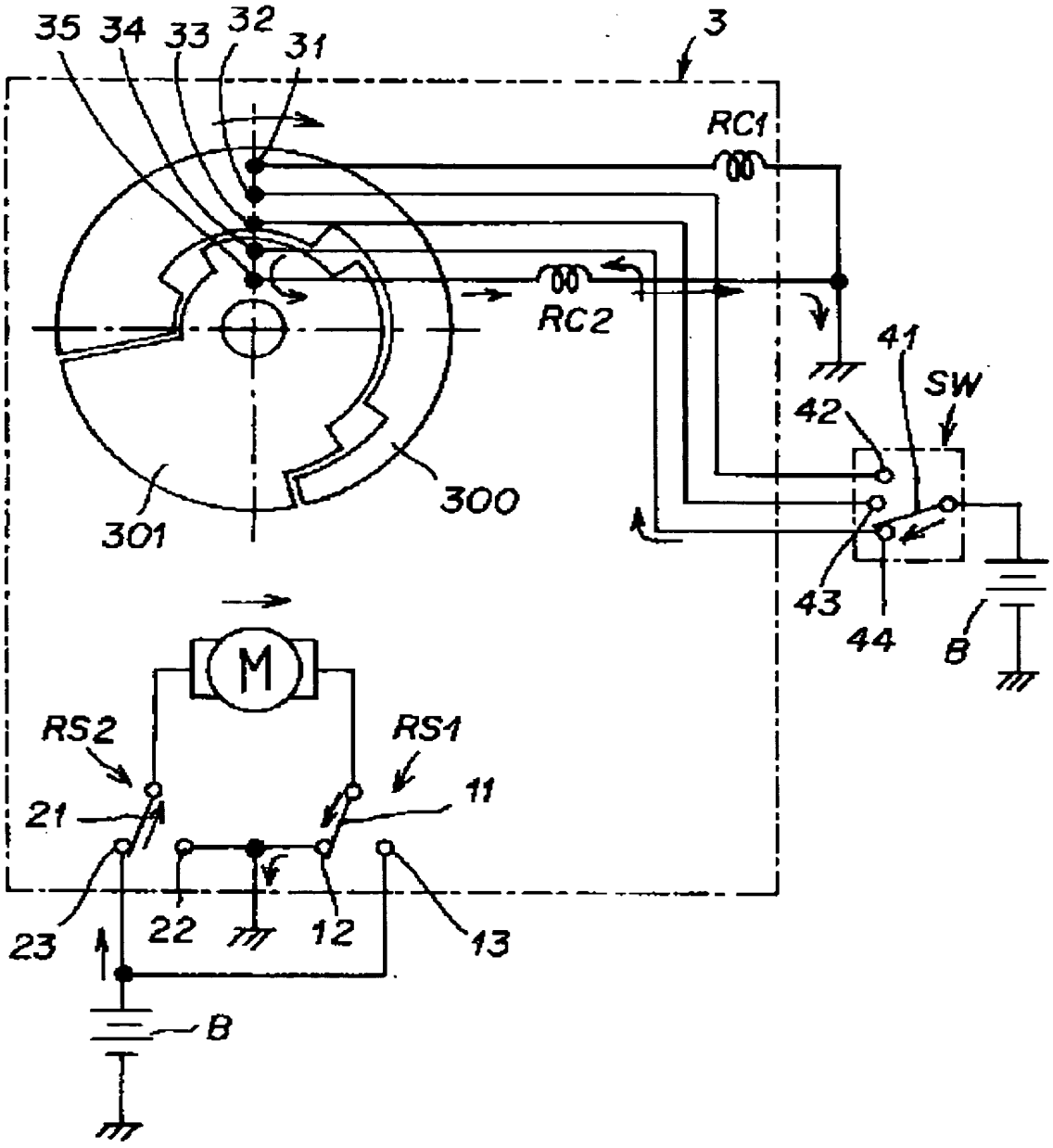
[Drawing 9]

【図 9】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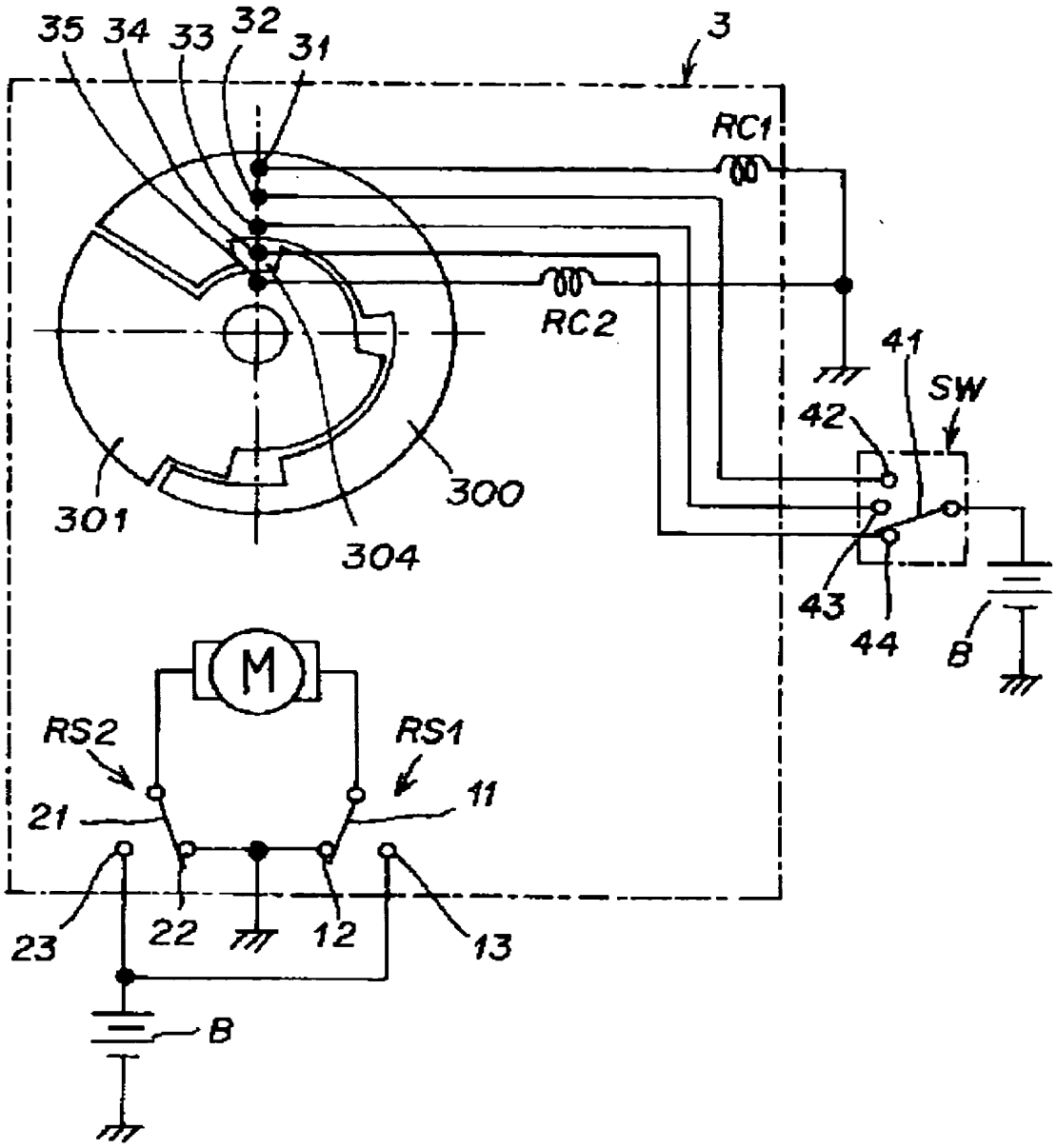
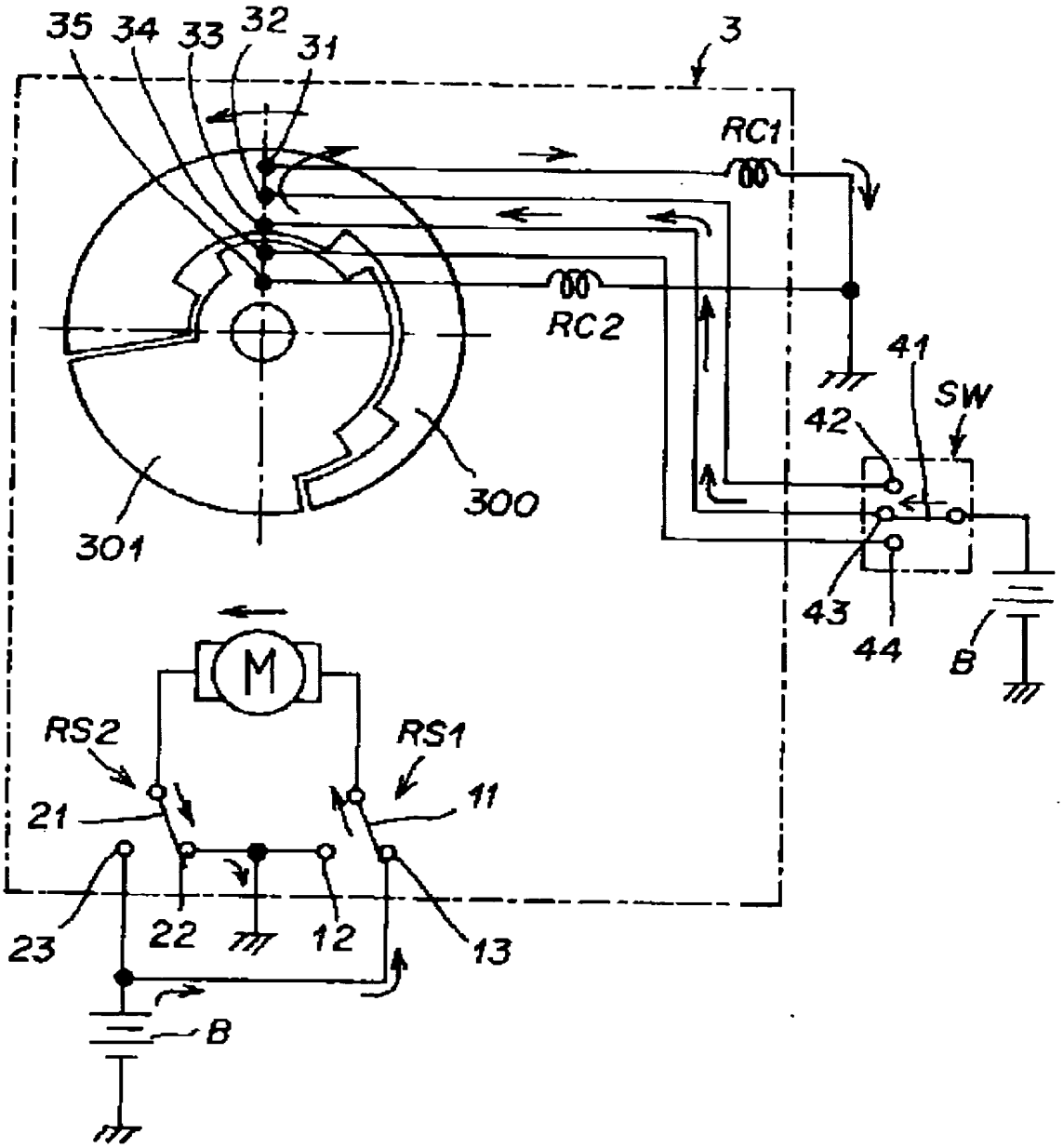
[Drawing 10]

[図 10]



[Drawing 11]

[図 11]



DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] 1 operation gestalt of the circumference check equipment for automobiles of this invention is shown, and a mirror assembly is flat-surface explanatory drawing in the state where it is located in three positions.

[Drawing 2] It is the front view of door mirror equipment.

[Drawing 3] It is the plan of switching equipment.

[Drawing 4] As for explanatory drawing of the screen of a monitoring device in case, as for explanatory drawing of the screen of a monitoring device in case a mirror assembly is located in a front devotion position, and (B), a mirror assembly is located in an operating position, and (C), the mirror assembly of (A) is explanatory drawing of the screen of the monitoring device when being located in a back devotion position.

[Drawing 5] It is the circuit diagram of the control circuit section when being located at the time at which a mirror assembly is located in an operating position.

[Drawing 6] It is the circuit diagram of the control circuit section when the mirror assembly is rotating in the front devotion position from the operating position.

[Drawing 7] It is the circuit diagram of the control circuit section when a mirror assembly is located in a front devotion position.

[Drawing 8] It is the circuit diagram of the control circuit section when the mirror assembly is rotating in the operating position from the front devotion position.

[Drawing 9] It is the circuit diagram of the control circuit section when the mirror assembly is rotating in the back devotion position from the operating position.

[Drawing 10] It is the circuit diagram of the control circuit section when a mirror assembly is located in a back devotion position.

[Drawing 11] It is the circuit diagram of the control circuit section when the mirror assembly is rotating in the operating position from the devotion position.

[Description of Notations]

1 [— The control circuit section, 4 / — Camera equipment (image pck-up equipment) 5 / — A monitoring device, D / — A door, DM / — Door mirror equipment, M / — A motor, SW / — Control switch.] — The mirror base, 2 — A mirror assembly, 3